not occur under aseptic conditions. The amount of ammonia apparently may increase as organisms reduce the toxicity. The ammonia is assumed in this case to exist in delicate transition stages detected by analysis, but not in toxic form. The soils heated above 250° C. are supposed to be less toxic because much of the ammonia is volatilized by the high temperatures.

The author believes that heating to very high temperatures does not change the quality of the effects gained by heating at ordinary sterilizing temperatures, but merely makes these effects more marked by quantitatively intensifying them. His results, therefore, are valuable in elucidating the effects of sterilizing soils by heat.—WM. CROCKER.

Vegetation of an antarctic island.—Lying 600 miles southwest of New Zealand, 920 miles southeast of Tasmania, and 970 miles from the antarctic continent, Macquarie Island is in a position of great isolation. It is little more than a short range of mountains with peaks ranging from 900 to 1424 ft. in height, the length of the island being 21 miles and its breadth less than 4 miles. The hills descend rapidly toward the sea, forming bold headlands and precipitous cliffs with no harbors or sheltered bays. It possesses a remarkably equable temperature, the mean maximum being 43°.5 F. and the mean minimum 37°.9 F., while the extreme range is only 25°.8 F. A rainfall of 45 inches is distributed so that no month has less than 3 inches. Wind velocity is uniformly great, averaging 18 miles per hour.

It has an impoverished vascular flora of 30 seed plants, 3 ferns, and 1 lycopod. Concerning the origin and affinities of this flora, CHEESEMAN[11] decides that with the exception of 3 endemic grasses it dates back no farther than the last glacial epoch. Its repopulation was probably affected through the agency of birds, as half its species are common to New Zealand, 15 are found also in Fuegia or South Georgia, and a like number are circumpolar.

The vegetation is characterized by the entire absence of trees and shrubs. The conspicuous plant forms are the tussock grasses, principally *Poa foliosa*, the large leaved "Macquarie Island cabbage," *Stilbocarpa polaris*, an Araliaceous plant resembling a fine rhubarb, the cushion of *Azorella Selago*, globular mosses often 4 ft. across, and a purple flowered Composite, *Pleurophyllum Hookeri*, with long sage green leaves. Of these the tussock grass is most abundant, occupying much of the hillside slopes.—GEO. D. FULLER.

Journal of the Arnold Arboretum.—This new quarterly journal has been established to secure "the prompt publication of information about trees and shrubs collected at the Arnold Arboretum," which was a function of *Garden and Forest* (1887–1897). The first number (July 1919) includes the fifth paper of CAMILLO SCHNEIDER entitled "Notes on American willows" (pp. 1–32);

[11] CHEESEMAN, T. F., The vascular flora of Macquarie Island. Sci. Rep. Australian Antarctic Expedition of 1911–14. Series C. vol. 7. pt. 3. pp. 63. map. 1919.

"New species, varieties, and combinations from the herbarium and the collections of the Arnold Arboretum," by ALFRED REHDER (pp. 44–60); "A phytogeographical sketch of the ligneous flora of Korea," by E. H. WILSON (pp. 32–43); and the fifth paper by C. S. SARGENT entitled "Notes on North American trees" (pp. 61–65).—J. M. C.

Toxicity of alpha-crotonic acid.—Alpha-crotonic acid, in concentrations of 25–50 p.p.m., is very toxic to wheat plants. Its toxicity is markedly reduced by the phosphate radical, as SKINNER and REID[12] show by using it in water cultures of wheat with a three-salt medium varying according to the triangle system. The crotonic acid does not affect the relative absorption of any one salt, thus differing from some of the other toxic organic compounds studied in SCHREINER'S laboratory. The real nature of the antagonism is not known.—J. J. WILLAMAN.

New genera.—NAKAI[13] has described a new genus of Oleaceae (*Abeliophyllum*), found in Corea. It is an endemic and related to *Fontanesia* (Fraxineae), a monotypic oriental genus.

PENNELL[14] has described a new genus of Onagraceae (*Peniophyllum*), based on *Oenothera linifolia* as the type. In a conspectus of *Kneiffia* (*Oenothera*) he recognizes 13 species, 4 of which are described as new.—J. M. C.

Plant mucilage.[15]—The mucilage in cacti, mallows, tragacanth, and lilies arises in special large cells by hydrolysis of the cellulose wall, a hydrocellulose being an intermediate stage. These walls are not secondarily thickened. An account is given of the reaction of these mucilages to various stains.—J. J. WILLAMAN.

Germination.—RUSSELL[16] finds that the germination of camphor seeds in the commercial seed bed is greatly improved by removing the pulp. By pulping the seeds the increase in the number of seeds of transplantable size amounted to 60 per cent.—WM. CROCKER.

[12] SKINNER, J. J., and REID, F. R., The influence of phosphates on the action of alpha-crotonic acid on plants. Amer. Jour. Bot. 6:167–180. 1919.

[13] NAKAI, TAKENOSHIN, Genus novum Oleacearum in Corea media inventum. Bot. Mag. Tokyo 33:153, 154. 1919.

[14] PENNELL, F. W., A brief conspectus of the species of *Kneiffia*, with the characterization of a new allied genus. Bull. Torr. Bot. Club 46:363–373. 1919.

[15] LLOYD, F. C., Origin and nature of the mucilage in the cacti and in certain other plants. Amer. Jour. Bot. 6:156–166. 1919.

[16] RUSSELL, G. A., Effect of removing the pulp from camphor seed on germination and the subsequent growth of the seedling. Jour. Agric. Research 17:223–238. 1919.